



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,631	11/26/2003	Frank-Michael Kamm	P2002,1010	9710
24131	7590	11/22/2005	EXAMINER	
LERNER AND GREENBERG, PA P O BOX 2480 HOLLYWOOD, FL 33022-2480			ROSASCO, STEPHEN D	
			ART UNIT	PAPER NUMBER
			1756	
DATE MAILED: 11/22/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/723,631

Applicant(s)

KAMM, FRANK-MICHAEL

Examiner

Stephen Rosasco

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 6-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/5/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Detailed Action

Applicant's election without traverse of Group I (claims 1-5) in the reply filed on 10/20/05 is acknowledged.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Ota (2004/0067420 A1).

Ota teaches (see claims) an EUV-microlithography apparatus, comprising: an illumination-optical system configured to guide a beam of EUV light to a pattern-defining EUV-reflective reticle; a projection-optical system situated relative to the reticle and illumination-optical system, and configured to guide the beam of EUV light from the reticle to a sensitive substrate, so as to transfer the pattern from the reticle to the sensitive substrate; and a reticle stage comprising an electrostatic reticle chuck situated and configured to secure the reticle to the reticle stage, wherein the reticle comprises an electrically non-conductive reticle substrate having first and second major surfaces, a multilayer film formed on the first major surface and configured for reflecting EUV light incident to a surface of the multilayer film, an EUV-absorbing layer formed on the surface of the multilayer film and patterned so as to define an exposure pattern, and an electrically

Art Unit: 1756

conductive layer formed on the second major surface, the electrically conductive layer being configured so as to be attracted electrostatically to the reticle chuck.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bessy et al. (6,180,291) or Araki et al. (6,888,621) in view of Ota (2004/0067420 A1).

The claimed invention is directed to a reflection mask for projecting a structure onto a semiconductor wafer, comprising: a carrier material having a front side and a rear side with a surface; a layer stack for reflecting obliquely incident light and containing an alternating sequence of reflective layers formed on said front side of said carrier material; a light-absorbing layer having at least one opening formed therein as the structure to be projected and disposed on said alternating sequence of reflective layers; and an electrically conductive layer buried within said carrier material near said surface of said rear side of said carrier material.

And wherein said electrically conductive layer has a concentration of dopant atoms, which are disposed within said carrier material.

An externally applied field is provided by a substrate holder to which an electrostatic potential is applied. The electric field built up by the substrate holder effects a

redistribution of charge carriers within the electrically conductive layer in such a way as to effect a force of attraction between the electrode formed by the substrate holder and the counter electrode in the buried layer. The mask blank or the reflection mask is chucked to the substrate holder on account of the attraction.

Bessy et al. teach (see claim 1) a reticle for use in lithographic processes comprising a patterned masking layer disposed on a substrate;

and at least one of a first or second layers comprising a cermet material capable of being conductive when exposed to an increased electric field, due to build-up of electrostatic charge during lithographic processing.

Araki et al. teach a holding apparatus which holds a mask in a light exposure apparatus, the mask containing a pattern to be transferred onto a substrate by illuminating the pattern with an illumination light, and the light exposure apparatus being a scanning-type apparatus that moves the mask in a scanning direction of travel perpendicular to an optical axis of the illumination light while the mask pattern is illuminated by the illumination light, the holding apparatus comprising: a mask holder which holds the mask, wherein the mask holder travels in a direction perpendicular to the optical axis; a vacuum adhesion device which generates a vacuum adhesion force between the mask and the mask holder, wherein the mask is adhered to the mask holder by the vacuum adhesion force; and an external force supplying system, which supplies an external force to the mask in order to maintain a predetermined positional relationship between the mask and the mask holder, wherein the external force is different from the vacuum adhesion force, wherein the external force effects to the mask in a direction perpendicular to the scanning direction to a

Art Unit: 1756

formation surface of the mask pattern formed on the mask, and wherein the mask is held on the mask holder by a holding force including the vacuum adhesion force and the external force.

And wherein said external force supplying system is an electrostatic attractive force that secures the mask to said mask holder by applying a predetermined voltage there between.

The teachings of Bessy et al. or Araki et al. differ from those of the applicant in that the applicant teaches that the conductive layer is within a substrate of a reflection mask.

Ota teaches an EUV-microlithography apparatus, comprising: an illumination-optical system configured to guide a beam of EUV light to a pattern-defining EUV-reflective reticle; a projection-optical system situated relative to the reticle and illumination-optical system, and configured to guide the beam of EUV light from the reticle to a sensitive substrate, so as to transfer the pattern from the reticle to the sensitive substrate; and a reticle stage comprising an electrostatic reticle chuck situated and configured to secure the reticle to the reticle stage, wherein the reticle comprises an electrically non-conductive reticle substrate having first and second major surfaces, a multilayer film formed on the first major surface and configured for reflecting EUV light incident to a surface of the multilayer film, an EUV-absorbing layer formed on the surface of the multilayer film and patterned so as to define an exposure pattern, and an electrically conductive layer formed on the second major surface, the electrically conductive layer being configured so as to be attracted electrostatically to the reticle chuck.

It would have been obvious to one having ordinary skill in the art to take the teachings of Bessy et al. or Araki et al. and combine them with the teachings of Ota in order

Art Unit: 1756

to make the claimed invention because the substrate materials are essentially the same and reflection masks are known to be more sensitive to vibrations due to their use with shorter wavelength.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Rosasco whose telephone number is (571) 272-1389. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'S. Rosasco', is written over a horizontal line.

S. Rosasco
Primary Examiner
Art Unit 1756

S. Rosasco
11/15/05